

WHAT IS CLAIMED IS:

1. An imager comprising:
a first region of semiconductor material, the first region of
5 semiconductor material having a first conductivity type; and
a second region of semiconductor material located on the first
region of semiconductor material, the second region of semiconductor
material having a second conductivity type.
- 10 2. The imager of claim 1 and further comprising a third
region of semiconductor material located on the second region of
semiconductor material, the third region of semiconductor material
including silicon and germanium and having the second conductivity
type.
- 15 3. The imager of claim 2 wherein the second semiconductor
region is free of germanium.
4. The imager of claim 3 wherein the second semiconductor
20 region includes silicon.
5. The imager of claim 3 wherein the first semiconductor
region is free of germanium.
- 25 6. The imager of claim 5 wherein the first and second
semiconductor regions include silicon.
7. The imager of claim 2 and further comprising a fourth
region of semiconductor material located on the third region of

semiconductor material, the fourth region of semiconductor material having the second conductivity type and being free of germanium.

8. The imager of claim 7 wherein the second semiconductor
5 region is free of germanium.

9. The imager of claim 8 wherein the second and fourth regions of semiconductor material include silicon.

10 10. The imager of claim 7 wherein the fourth region of semiconductor material has a greater dopant concentration than the second region of semiconductor material.

11. The imager of claim 7 and further comprising:
15 a fifth region of semiconductor material located on the fourth region of semiconductor material, the fifth region of semiconductor material having the first conductivity type;
a sixth region of semiconductor material located on the fifth region of semiconductor material, the fifth region of semiconductor
20 material having the second conductivity type; and
a seventh region of semiconductor material located on the sixth region of semiconductor material, the seventh region of semiconductor material including silicon and germanium and having the second conductivity type.

25 12. The imager of claim 11 wherein the second and sixth semiconductor regions are free of germanium.

13. The imager of claim 12 wherein the second and sixth
30 semiconductor regions include silicon.

14. The imager of claim 12 wherein the first and fifth semiconductor regions are free of germanium.

5 15. The imager of claim 14 wherein the first, second, fifth, and sixth semiconductor regions include silicon.

16. The imager of claim 11 and further comprising an eighth region of semiconductor material located on the seventh region of semiconductor material, the eighth region of semiconductor material having the second conductivity type and being free of germanium.

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17. A method of forming an imager, the method comprising the steps of:

15 forming a first region of semiconductor material, the first region of semiconductor material having a first conductivity type; and

 forming a second region of semiconductor material on the first region of semiconductor material, the second region of semiconductor material having a second conductivity type.

20 18. The method of claim 17 and further comprising the step of forming a third region of semiconductor material on the second region of semiconductor material, the third region of semiconductor material including silicon and germanium and having the second conductivity

25 type.

19. The method of claim 18 wherein the second semiconductor region is free of germanium, and includes silicon.

20. The method of claim 19 and further comprising the step of forming a fourth region of semiconductor material on the third region of semiconductor material, the fourth region of semiconductor material having the second conductivity type and a greater dopant concentration
5 than the third region, and being free of germanium.

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